

The Green Chemistry Research and Development Act of 2004  
House Committee on Science Hearing  
March 17, 2004  
Statement of Steve Bradfield, Representing the Carpet & Rug Institute

Mr. Chairman and Committee Members, it is an honor to be invited to share my comments with you today on the Green Chemistry Research and Development Act of 2004. I represent the fiber, carpet, and rug manufacturer members of the Carpet & Rug Institute, headquartered in Dalton, GA, as Chairman of Sustainability Issues. I have asked to speak in this capacity to communicate the outstanding efforts, and collective comments, of our industry members in the area of green chemistry and sustainability.

The carpet industry is one of the last bastions of US textile manufacturing. Our industry has maintained its long-standing relationships with the communities where we've lived and worked for four generations, and we intend to keep doing so. We've largely accomplished this through the development of material and process technologies that have resulted in continuous improvements in the value of soft floorcovering.

**Technology development is the lifeblood of our industry.**

Good carpets begin with good chemistry. Over the years our industry has consistently made changes that promote human and environmental health and safety. We did this before green chemistry and sustainability became watchwords for a very simple reason – it increased the desirability of carpet in the eyes of our customers and improved profitability. **Customer demand and profitability are the most enduring drivers of green chemistry and sustainability.**

While it can be argued that many environmental improvements date from 1985 with the advent of Toxic Release Index reporting, far more improvements have been driven by market forces. The permanence and efficiency of positive change driven by a free market cannot be underestimated. **No regulations could have moved our industry so far and so fast in the direction of sustainable development.**

Green chemistry has long been valued by our industry. Since 1991 the CRI has administered a voluntary indoor air quality program known as Green Label Certification. It is a cooperative effort between the carpet industry and its suppliers to eliminate and reduce chemicals of concern to levels that are far below the volatile organic compound emission rates of other interior building finishes. **No other building material industry has committed this level of resources or achieved as much progress in indoor air quality improvement.**

We've raised the bar in the Green label Program three times since 1991 and will soon raise it yet again to meet our pledge of continuous improvement and leadership on this green chemistry issue. But as with any voluntary program, these improvements are never fast enough or far enough to satisfy all stakeholders. **We strongly urge the Interagency Working Group to work closely with industry to set *ambitious* and *realistic* goals for ongoing green chemistry programs.**

It is often easy to lose sight of the value vested in the “willing”, those who take up the challenge to develop materials that extend the reach of green chemistry, while the “unwilling” remain anonymous and untouched by the effort to create a sustainable environment for our children. We are not suggesting penalties for the faint of heart. **We believe that rewarding those that commercialize green chemistry developments with research and development grants, tax incentives, and preferential federal purchasing programs will drive the desired advances in green chemistry.**

We also encourage this Committee to acknowledge the broad range of activities encompassed by green chemistry. **To those of us in the manufacturing sector green chemistry implies developments that are robust, additive to the value we bring to our markets, and highly implementable.** We believe green chemistry should be defined to include materials and process development. It should include pollution prevention in the classic sense of moving us toward the paradigm of becoming “less bad” in the near-term, but should also look forward to the longer-term development of “closed-loop” systems that move us into the “environmentally good” paradigms that allow us to mimic Mother Nature. **Green Chemistry can help us to eliminate the very concept of waste.**

**The carpet industry believes that green chemistry will proceed along two major pathways – nature's organic path, and man's synthetic/technical path.** Both are valid and offer a variety of promising discoveries and inventions. Bio-chemicals and biopolymers offer exciting possibilities for agriculture and industry. Meanwhile, our continued reliance on oil-based materials assures that the resulting waste will be available as recyclable feedstock for synthetic closed-loop processes.

**Our industry has many commercialized examples of green chemistry at work.** On the fiber side Mohawk Industries and Beulieu of America are taking post-consumer polyester drink bottles, processing them into flake, and remelting and extruding the material into polyester carpet fiber ready for spinning, dyeing, and tufting into residential carpet. Honeywell has developed a technology to recover the caprolactam monomer building block of nylon 6 from post-consumer carpet. Invista collects post consumer carpet and sends the dyed nylon into recycled uses such as extrusion molded under hood auto parts and geotextiles. Cargill Dow has developed a bio-based fiber called polylactic acid from corn that is now being evaluated in residential carpet

While universities, laboratories, and other basic research paths are a precursor to many of the applications of green chemistry that will find their way into our facilities, basic research alone will not change the way we manufacture and consume products. How will the research and development dollars granted by the agencies specified in the House Bill find their way into real solutions to real problems that face all Americans? How will priorities be established? **We believe industry should have a voice in defining the research and development agenda.**

We respectfully suggest that the Interagency Working Group undertake a survey of current environmental programs within the Federal Government to bring them up to date with the broad range of sustainability characteristics that will be impacted by green chemistry developments. These impacts are being defined and clarified through the use of life cycle analysis. Reliance on single environmental metrics like recycled content may provide a disincentive to green chemistry development in many circumstances. **First generation polymers usually cannot contain significant recycled content until a value recovery system returns them to second-generation manufacturing.**

**New materials and processes are beginning to take root in our industry.** Many carpet companies are recognizing that traditional thermoset materials can be replaced by thermoplastic materials - facilitating the recovery, remelting, and re-extrusion of tried-and-true materials like vinyl. Collins & Aikman and Interface have developed systems for returning vinyl carpet tile backing to their backing processes. Shaw was recognized with the 2003 Presidential Green Chemistry Award for developing a thermoplastic polyolefin carpet tile backing. The CRI Annual Sustainability Report includes many other industry developments and practices that reduce the environmental footprint of carpet through green chemistry (see [www.carpet-rug.com](http://www.carpet-rug.com)).

The Carpet America Recovery Effort (CARE) is a nonprofit effort including the carpet industry, the Federal EPA, state governments, and NGO's with the goal of diverting 40% of carpet landfill waste by 2012 (see [www.carpet-recovery.com](http://www.carpet-recovery.com)). Imagine a future when no carpet goes to a landfill, but is separated into its constituent parts at the end of its useful life to be sustainably recycled over and over again. This is happening today with some carpet types, but not enough as yet to significantly divert the 4.5 billion pounds of carpet that went to our nation's landfills in 2003. **Green chemistry can help to develop beneficial uses for the materials used to make carpet today and assure that steady progress is made toward sustainable materials that can go directly back into carpet production in the future.**

Perhaps the most compelling reason to support green chemistry and the growth of sustainable materials and processes in carpet is jobs. Annual carpet production and consumption in the US of \$12 Billion is equal to the rest of world carpet production and consumption combined. Carpet jobs will stay in the US if we can develop ways to keep post-consumer carpet materials in sustainable closed-loop recycling systems that reduce the need for virgin raw materials and lower the energy embodied in successive generations of carpet products. **Why would any US company choose to manufacture overseas if their valuable raw materials are being collected and recycled at lower cost, with no sacrifice of performance, from American homes and businesses in close proximity to the means of production?**

**The economic benefits of green chemistry are quantifiable in each of the example given herein.** As an industry, green chemistry has helped to reduce the water required for dyeing a square yard of carpet from 14.9 gallons in 1995 to 8.9 gallons in 2002. The energy required from thermal fuels to make a square yard of carpet has fallen from 14.5 million BTU's in 1995 to 10.3 million BTU's in 2002. Today the carpet industry has the same level of CO2 emissions it reported in 1990 yet it produces 40% more carpet.

**Shaw's experience with green chemistry is representative of the developments that are ongoing in the industry.** By way of illustration, Shaw's polyolefin carpet tile backing has fueled an average annual growth rate in carpet tile of almost 15% per year over the last four years. This growth provides 440 jobs in our Cartersville, Georgia carpet tile facility and generates over \$100 million in revenue. It has reduced packaging costs by 70%, shipping costs by 20%, and resulted in over \$100,000 in annual post-industrial scrap recovery. The recovery of the post-consumer carpet tile will result in even more second-generation savings. **Other manufacturers can share economic success stories that are just as compelling.**

In 1950 the carpet industry shipped 97 million square yards of carpet. In 2001 we shipped 1.879 billion square yards. Between 1965 and 2001 carpet increased in price by 90.4% while the same time period saw an automobile increase 180.4% and a combined total of all commodities increased 315.4%. Over 80% of the US carpet market is supplied by mills located within a 65-mile radius of Dalton, Georgia. **Carpet is important to the economy of Georgia and the United States. Green chemistry is an important tool to facilitate its continued growth.**

**In conclusion, we support the adoption of The Green Chemistry Research and development act of 2004 with the suggestions that Congress encourage a cooperative effort among government, academia, and business; that Congress seek additional incentives to reward those companies that commercialize green chemistry developments; that obstacles to the green chemistry discovery process be removed from current federal environmental programs; and that adoption of green chemistry in the broader context of sustainable product development should become a primary instrument of pollution prevention policy in the United States with the additional goals of job creation and economic improvement.**

